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ABSTRACT

An interaction exists among cognitive processes, basic learning skills, and the cultural and social contexts in which they develop. Primary socialization experiences, those that children are exposed to in their personal, immediate lives, form a fundamental basis for cognitive development. In secondary socialization settings children acquire specific learning skills. Poor and minority students do not encounter favorable circumstances for cognitive development in schools. An external, societal norm is imposed upon these children without recognition of the cognitive processes already developed in primary socialization settings. Schools tend to ignore or consider irrelevant anthropological, sociological, and psychological data offering evidence that cultures differ in how they perceive and cognitively organize the world of experience. Schools make a critical mistake in assuming that the same basic skills developed in the dominant culture will be meaningful and useful in other cultural systems of knowledge. The functional analysis of the use of academic skills is necessary as a framework for creating curriculum applications. An interactionist paradigm offers the most promise for investigation of and experimentation with functional learning systems. (Author/MK)

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WHAT DO WE KNOW ABOUT TEACHING AND LEARNING IN URBAN SCHOOLS?

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Volume 8

The Educational Promise of Cultural Pluralism

Vera John-Steiner and Larry Smith
The University of New Mexico

U S DEPARTMENT OF HEALTH
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Foreword

This monograph is one of a series of papers on the issues of instruction and learning in urban schools that were presented at a conference held July 10-14, 1978, in St. Louis, Missouri, sponsored by the Urban Education Program, CEMREL, Inc., and supported by the National Institute of Education. It is our hope that both the conference and the series of fourteen monographs that resulted from it will assist educational researchers and school practitioners in identifying and analyzing instructional and learning problems in urban school settings, and will contribute to the development of strategies for the improvement of schooling for students.

Titled "What Do We Know About Teaching and Learning in Urban Schools?", the 1978 conference focused on an examination of research findings on the teaching-learning process in areas most germaine to and under control of the schools. The key problems to which the papers are addressed are the assessment of learning outcomes and the analysis of the relationships between instructional and other inputs and learning outcomes. Important contextual issues not under the full control of schools, such as community and parental involvement and the impact of federal and state governments in improving educational opportunities, were addressed at the conference as well.

The conference was conceived, in part, as an initial step in the development of a state-of-the-art review of the most critical issues faced by educators in urban schools who struggle with the morass of general educational problems, exacerbated by decreasing public confidence in large city schools, declining student enrollment, and increasing numbers of poor and minority students. While the conference does not exhaust discussion of the problems

that are particularly significant in the urban school setting, it forms a convenient focus for viewing the larger issues affecting education in our cities.

The educational innovation and change growing out of more than ten years of effort since the passage of the Elementary and Secondary Education Act of 1965 -- the primary stimulus for federal support of research and development in education -- has had the least impact on the student populations typical of the urban school setting. With this concern as a primary consideration, ten months prior to convening the conference, CEMREL's Urban Education Program had begun work with a network of twenty big-city school districts and state departments of education in Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, Ohio, Tennessee, and Wisconsin. Thus, the conference and the research findings of national authorities was undertaken to lay a foundation for future work in urban educational research and development and to undergird present efforts at improvement of schools in the region.

The Conference Design

To guide the development of the presenters' preparation of their papers, topical questions were prepared for them by Urban Education Program Staff and a paper format was recommended. Each presenter prepared a full paper based on the topical questions and results were summarized by the writers during general sessions of the conference. Because of a wide range of perspectives held on the conference issues, discussions precipitated by reactor panels composed of other prominent researchers, practitioners, and community leaders in education followed each general conference session. More than one hundred educational researchers and practitioners from across the country attended the conference. The invited participants came from school districts and state departments of education from nineteen states; thirteen institutions of higher education; four federal agencies; numerous educational laboratories and research and development centers; and seven social service agencies.

The conference was divided into two types of sessions: general sessions, wherein the nationally recognized speakers who wrote papers presented their summaries; and forum sessions, wherein reactors helped analyze the presentations and examine the concrete recommendations put forth by the general-session speakers. All participants were encouraged to present questions and reactions during these forum sessions.

Francis S. Chase, Director of Urban Education Studies, Dallas, Texas, gave the keynote address at the opening session of the conference, a banquet on Monday evening, July 10. His topic, "Promising Developments in Urban Education," summarized field studies that he was conducting under sponsorship of the Council of Great Cities Schools and the University Council for Educational Administration under a grant from the Spencer Foundation. Chase is Professor Emeritus of the University of Chicago, where he also served as Chairman and Dean of Education for ten years.

The Conference Topics

Each of the presenters had been asked to design a paper by responding to salient topical questions, drawn up by CEMREL's Urban Education Staff. The questions that were posed originally for each of the writers are presented below. Most of the resulting papers were developed into monographs for this series.

Compensatory Education: A Congressional Perspective Christopher T. Cross Minority Staff Director Committee on Education and Labor U.S. House of Representatives.	What is the current state of the evidence concerning projected changes in legislative mandates, and what may we expect related to changes in policy governing federally funded compensatory education programs?

Effective Teacher-Support Systems to Improve Instructional Conditions in Schools Joseph D. Liggins Assistant Superintendent for Staff Development Houston Independent School District	What teacher support systems are most effective in improving instructional conditions for students? What is the role of in-service training, and what types of in-service training can be recommended to urban educators? What other resources--such as additional curricular materials, support from teacher aides and volunteers, time re-allocations, team teaching arrangements, etc.--can be demonstrated to be effective in improving students' learning opportunities? What is the state of the evidence?
Assessment That Respects Complexity in Individuals and Programs Judah L. Schwartz Professor of Engineering, Science and Education Massachusetts Institute of Technology	How can we best measure and analyze the effects of instruction on students' learning in the major school subjects: What are the most appropriate times and strategies for measuring the effects of schooling on student learning? What do we learn from means of assessment other than standardized achievement testing? When and under what circumstances is it most appropriate to use alternative or complementary strategies for assessing program effectiveness?
Achievement Tests in Urban Schools: New Numbers Eva Baker Director Center for the Study of Evaluation University of California, Los Angeles	How can we best measure and analyze the effects of instruction on students' learning in the major school subjects? What are the most appropriate times to measure the effects of schooling on student learning? What are the cautions which should be taken into account before any attempt to evaluate the effectiveness of programs primarily on the basis on standardized achievement data, especially when the number of individual implementations is large and the actual conditions under which the implementations took place are not well documented?
Summer Drop-off and The Effectiveness of Compensatory Instruction Paul T. Hill The Rand Corporation	What has the era of compensatory education program development contributed to knowledge about achievement in the basic school subjects in urban schools? Where is the evidence? What, if anything, does the evidence indicate about methods for improving basic skills achievement? What, if any, recommendations can be made to school district planners on the basis of existing evidence?

Instructional Ingredients for the Development of Beginning Reading Competence Isabel Beck Co-Director Learning Research and Development Center University of Pittsburgh	Much research, program development, and implementation of efforts to improve achievement in basic school subjects has been concentrated in the area of reading. What approaches to instruction in reading have been successful in increasing achievement? Is there evidence that certain approaches are best suited to the needs of particular populations? Do these effects generalize to other areas of school learning, such as mathematics, social studies, and science?
A Discussion of The Literature and Issues Related to Effective Schooling Ronald Edmonds Director Center for Urban Studies Graduate School of Education Harvard University	Are there schools that have demonstrated a higher degree of effectiveness in the delivery of instruction in the basic school subjects than others serving similar student populations (in terms of socioeconomic backgrounds, family characteristics, minority populations, etc.)? What characteristics distinguish these schools from less successful schools in similar situations? What is the evidence that the explanatory characteristics have been correctly identified, and how strong is that evidence?
The Educational Promise of Cultural Pluralism Vera John-Steiner and Larry Smith Department of Educational Foundations College of Education The University of New Mexico	How can we approach problems of teaching and learning in urban schools so that the racial and cultural diversity of the school population is recognized, respected, and utilized constructively, to the extent possible? How do we differentiate between basic academic skills, which all students need to acquire for successful participation in our hetergeneous society, and curriculum decisions which can and should be tailored to the needs and interests of different sub-cultural groups? Do students benefit from participation in racially and culturally hetero-geneous classrooms, or perhaps from certain kinds of heterogeneous instructional settings but not others? What is known about these issues, and how much consensus is there about the cultural values on which schooling must be based?

New Perspectives on School District Research and Evaluation Catherine Lyon Center for the Study of Evaluation University of California, Los Angeles	What is the role of research and development processes in improvement of instruction and learning in basic school subjects in large urban systems? In what form are these processes being applied to the teaching and learning process in urban schools? What is the evidence and how solid are the indications that use of these proceses has resulted in improved student achievement?
Effective Teaching and Learning in Urban Schools Jane A. Stallings and Shirley W. Hentzell Stanford Research Institute	Looking specifically at the interaction of student, teacher, curricular and school organization characteristics, what instructional conditions encourage achievement in basic school subjects? What evidence is there, and how good is it? How are the effects of instructional conditions on student achievement measured? On the basis of existing evidence and trends, what recommendations can be made for improving students' instructional environments?
Mathematics and The Urban Child Marilynn Suydam Center for Science, Mathematics, and Environmental Education The Ohio State University	Mathematics is a school subject which is generally considered basic, insofar as mathematical skills are required for successful adult functioning in our complex society. What evidence is there to indicate which approaches to instruction in mathematics have been successful in increasing achievement? Is there evidence that certain approaches are best suited to the needs of particular populations? Do these effects generalize to other areas of school learning, such as reading, social studies, and science?
Basic Skills in Urban Schools: A View From The Bilingual Classroom Concepcion Valadez Graduate School of Education University of California, Los Angeles	Since the second largest minority population served by many urban school districts is a bilingual population, what is the current state of the evidence about the effects of programs developed especially for bilingual students? What, if anything, does the evidence indicate about the effects of such programs on basic skills achievement?

School-Community Relations and The Urban School Dean Bowles Director Home-School-Community Project Wisconsin Research and Development Center for Cognitive Learning	What do we know or what can we learn about the influence of parental and community involvement in schooling on student achievement? How does parental and community involvement affect the teaching-learning process? If information is not available to answer these questions on even a tentative basis, what types of research are recommended to study this aspect of students' lives more effectively?
Frank Sobol Basic Skills Group National Institute of Education	Are there research and development products which have contributed to improved instruction and increased student achievement in basic school subjects in large urban school systems? What is the evident and how solid are the indications that use of these products has resulted in improved student achivement?
A Summary of The Conference Findings Edmund W. Gordon Director Institute for Urban and Minority Education Teachers College Columbia University	In light of the evidence produced by examination of these issues, what concrete recommendations can be made to school districts concerning the improvement of instruction and learning in basic school subjects? In light of the same evidence, what research and development agenda should be the focus of future study and program development?
Dr. Francis S. Chase, Director of Urban Education Dallas, Texas	Keynote Speaker for Conference Banquet: "Promising Developments in Urban Education"

--Harriet Doss Willis
Director
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The Educational Promise of Cultural Pluralism

Vera John-Steiner and Larry Smith
The University of New Mexico

The basic theme of cultural pluralism in education is well expressed by Courtney Cazden when she writes that "how we teach should be adapted to how children learn" (Cazden, 1976). This simply stated objective has proved difficult to achieve and has eluded our best intentions and efforts. Even now, our knowledge of the learning and cognitive processes is rudimentary. And so, while we may precisely test the results of what we have accomplished, we can hardly test what we have not yet grasped and do not know.

It may be useful, before we praise or condemn this or that instructional method, to "recouler pour mieux sauter"--that is, "to examine anew" what we know and do not know about the fundamental learning and cognitive processes. To do this, it may be useful, if somewhat painful, to dismantle some of our favorite and trendy axioms in order to reach a stronger synthesis of the theories we have developed and methods that we use. To do this, we propose the use of an interactionist view to bring together our knowledge of the learning processes and cognitive development, so that we may look at schooling, learning, and education with fresh eyes.

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I. AN EXAMINATION OF COGNITIVE PROCESSES AND BASIC SKILLS

The focus of this paper is upon a three-way interaction among cognitive processes, basic learning skills, and the cultural and social contexts in which they develop. The assumptions upon which this paper proceeds are the following:

1. Cognitive processes and basic skills are interdependent, although functionally and developmentally distinct from each other.

2. Cognitive development that takes place in a primary socialization setting (such as the family) is qualitatively different from development that takes place in a secondary setting (such as the school) and is governed by different rules in approach.

3. The unification of learning acquired in these diverse settings is an essential aspect of development. This process is threatened when children are viewed as lacking in educability due to racial or social-class characteristics.

4. Effective learning of a lasting nature further requires a "transformation" in the underlying cognitive processes, as suggested by L.S. Vygotsky (1978).

5. The changing relations among cognitive processes, basic skills, and the social and cultural contexts in which they develop are represented as "functional learning systems" within the growing human being.

6. The exploration of learning as an adaptive, socially shaped process has been hampered by the prevalence of developmental theories that do not fully recognize the fact that humans are first and foremost social beings.

7. As learning develops through meaningful social interaction, both the content and the organization of learning reflect the diversity of these interactions as molded by cultural and historical factors. In a culturally diverse country like the United States, educational policy committed to cultural pluralism requires a recognition and productive use of the cognitive diversity students present.

In order to differentiate between cognitive processes and basic learning skills, another related distinction between primary and secondary learning must be made. What is primary learning? In the context of home and family, children learn through personal channels from individuals who are of emotional significance to them. This is tutorial learning, in which the child is engaged in face-to-face situations, where the interactants know a great deal about each other's tempo; it is pervasive learning, since it is not limited to a single setting, like the classroom. Learning takes place both inside and outside of the house--in the uncle's yard, with peers, on Sunday. It criss-crosses the life of the child as it criss-crosses many situations. Lastly, this learning is highly adaptive since it is linked to the concerns and needs of the child's immediate community.

In our own work in Southwestern Pueblo communities we were struck by the importance of this type of learning and how it differs from learning in laboratory or school settings. Children in many Native American communities spend considerable stretches of time closely monitoring the complex sequential activities of their elders. This mode of learning takes place in addition to learning through verbal instruction. While children are observing their elders, they are quite selective; they tend to follow around those individuals from their broader community with whom they have a particularly important relationship--favorite uncles, for example; not necessarily all grandmothers or grandfathers, but those who in some way have become significant for a particular child. If we examine the consequences of learning in a village

community of the kind that Pueblo children are raised in, we need to look not only at the cognitively patterned recurrent tasks--that is, ask not only what are the kinds of skills and activities needed to be an effective participant in such a community--but also to examine the kind of interpersonal relationships that contribute to learning. In the context of primary socialization, then, Pueblo children are freer to choose their mentors and to observe and practice for long periods of time without directed instructions, and with very little pressure to perform well within a certain length of time.

Thus, primary socialization experiences are those that children are exposed to in their personal, immediate lives--those of their family, their home, their neighborhood, their peer and kinship relationships. These experiences, which begin touching and influencing children from infancy, are most often markedly informal in frequency and quality. Such experiences tend to be both highly recurrent and personal in nature, and they form a fundamental basis for cognitive development.

One of the indications of how important these primary experiences are to a child is seen in the fact that it is at this time, and through these informal, recurrent, personal means, that the complex cognitive processes of language acquisition take shape.

The interactions between the young speaker and his or her caretaker furnish us with important examples of the kind of informal learning that characterizes the primary socialization setting. It has been found in recent studies that adults systematically modify their own speech when addressing young children, which makes the task of language learning much simpler. Mothers often use the child's name as an attention getter (Shatz & Gelman, 1973) or they use a higher pitch or an exaggerated tone. They also model dialogues and thus convey to children some of the ways in which effective communication takes place in differing contexts (Ervin-Tripp, 1977).

In a recent article, Moskowitz (1978) summarizes these characteristics of early communication interactions:

> Perhaps the most pervasive characteristic of caretaker speech is its syntactic simplicity. While a child is still babbling, adults may address long, complex sentences to her, but as soon as she begins to utter meaningful, identifiable words they almost invariably speak to her in simple sentences. Over the next few years of the child's language development the speech addressed to her by her caretaker may well be describable by a grammar only six months in advance of her own. (p. 948)

These modifications of speech on the part of caretakers are seldom planned or even conscious; they illustrate the effects of the mutual adjustment that makes tutorial learning so effective. Indeed, as Moskowitz and others have clearly shown:

> In order to learn a language a child must also be able to interact with real people in that language. A televison set does not suffice as the sole medium of language learning because, even though it can ask questions, it cannot respond to the child's answers. A child, then, can develop language only if there is language in her environment and if she can employ that language to communicate with other people in her immediate environment. (p. 94)

Studies of primary learning environments of older children are rare, but Labov (1970) has studied speech, verbal ability, and logical reasoning ability of urban, black children both in their natural sociolinguistic settings and in stringently controlled interview settings. Upon close examination of primary learning environments, Labov found the same kind of learning strategies in operation that we have characterized as personal, tutorial, pervasive, and adaptive--but, of course, adaptive within their own social contexts.

> The view of the Negro speech community which we obtain from our work in the ghetto areas is precisely the opposite from that reported by Deutsch or Bereiter and Englemann. We see many speech events which depend upon the competitive exhibition of verbal skills--sounding,

> singing, toasts, rifting, lauding--a whole range of activities in which the individual gains status through his use of language . . . We see the younger child trying to acquire these skills from older children, hanging around on the outskirts of older peer groups, and imitating this behavior to the best of his ability. (p. 163)

In the primary settings, one sees the beginnings of such cognitive processes as the development of long-term memory, inner speech, information processing, and problem-solving strategies. As these processes develop throughout life, much as they did during the child's early years, they are based upon experiences that are both highly structured and those that are loosely structured.

Vygotsksy (1978) distinguishes between settings that reflect different degrees of planning in children's learning:

> That children's learning begins long before they attend school is the starting point of this discussion. Any learning a child encounters in school always has a previous history. For example, children begin to study arithmetic in school, but long beforehand they have some experience with quantity--they had to deal with operations of division, addition, subtraction, and determination of size. Consequently, children have their own preschool arithmetic, which only myopic psychologists could ignore.
>
> It goes without saying that learning as it occurs in the preschool years differs markedly from school learning which is concerned with the assimilation of the fundamentals of scientific knowledge. But even then, in the period of her first questions, a child assimilates the names of objectives in her environment, she is learning. (p. 84)

In school and in other secondary socialization settings (church, social and recreational agencies, etc.), the instruction of the child becomes more formal, sequential, more external and less personal, and more planned. It is in these contexts that the child acquires specific learning skills such as reading, writing, mathematics and those social skills necessary for

interaction with larger, less familiar groups in society.

In the most favorable circumstances the schools do attempt to build upon and to channel, to broaden, the emerging cognitive processes that were first developed in the primary settings. These processes already exist and they continue to develop while the child is in school. By utilizing these foundations of learning, schools may help children develop specific, functional, academic skills, through the planned, overt process of teaching.

Often, however, poor and minority students do not encounter such favorable circumstances in our schools. One of the reasons that children's skills, or lack of skills, become more visible in the schools may be that the secondary settings impose an external, societal norm upon the child, one by which the child is judged. That the schools are attempting to add a new dimension to the learning process does not necessarily mean that children can be instructed in these new skills as if the skills were detached entities, or that children can acquire these expanded skills without recognition of the cognitive processes the children have already developed in primary socialization settings.

Many of the unnecessary conflicts that arise in the transition from primary to secondary socialization, and in the acquisition of basic academic skills taught in the schools, have their origin in this dichotomy in settings. Often, schools do not fully recognize this problem and children do not receive help in integrating different approaches and expectations for their learning.

For meaningful, effective education to take place, education that helps the learner to reorganize how she or he feels, thinks about, understands, and structures the world, it is a help, not a hindrance, to recognize how the teaching of specific skills can be linked to a child's underlying, basic cognitive processes. This important task for educators is often not met in

the case of minority students and those born into poor communities. Their education is consequently of limited value to them and to the broader society of which they are part.

Many of the problems experienced by students in the move from primary to secondary socialization contexts could be considerably lessened if there were a greater recognition of the resources and strengths that are rooted in a child's primary cognitive processes--what they are and how they may be utilized. For the teaching of basic academic skills to be most effective, it would be helpful to look more closely at the development of children's primary cognitive processes, not as an obstacle to learning, nor as a superficial veneer to be removed, but rather as a foundation upon which to build.

Close examination of the factors involved in the transition from primary to secondary socialization is important because there are a number of educators still committed to the view that large groups of children exist who have difficulty in acquiring basic academic skills like reading because their primary socialization made them culturally disadvantaged:

> Children of poverty are typically acquainted with a less complex variety of objects, places and persons than are children from the middle class. It is hardly surprising, therefore, to find the performances of children of poverty falling well below the norms on tests of vocabulary and to find them during the year before entering school showing a very limited semantic mastery of such elementary abstractions as color, position, shape and number. (Hunt, p. 29, in press)

This kind of characterization of poor children needs to be reconsidered, for what these theories imply is that a child from certain home environments has a more limited level of development of underlying cognitive processes than children raised in middle-class settings. Extended further, cultural deprivation theories imply that there are large segments of whole populations (Navajos, blacks, etc.) who are deficient in long-term memory, in inner speech, in visual imagery, and in problem-solving strategies.

However, close working knowledge of the experiences of poor and culturally different children leads to different conclusions. Because underlying cognitive processes develop in the context of a primary socialization setting, the content and styles of such cognitive processes are highly reflective of the particulars of those ecologically patterned environments in which they develop. What is stored in long-term memory to form powerful coding strategies will, in large part, depend on how adults in that environment sort, group, and classify experience--what attributes of the environment they pay attention to and select to deal with, and for what reasons or uses they do so. These selections and creative manipulations made by adults form the world of reality, the particular aspects of recurrent experience which those people closest to the child expect him or her to learn while growing up. In terms of the child's cognitive processes, then, both content to be dealt with and style for dealing with the content are formed within a specific sociocultural context.

Schools often do not pay close enough attention to these differences in underlying cognitive processes formed in different cultures. In taking this position, schools ignore, or consider irrelevant, anthropological, sociological, and psychological data that offers clear evidence that cultures differ in how they preceive and cognitively organize the world of experience.

Ronald Edmonds expresses the need for schools to fully recognize cultural diversity:

> A varied response to what children bring to school would necessitate understanding, appreciating, accepting, and responding to the variety of cultures pupils represent. No such varied response has occurred, except in rare and fledgling instances of minority community control of public schooling. (1979, p. 15)

When schools do not pay sufficient attention to the differences in underlying

cognitive processes formed in different cultures, a critically important confusion remains, one which applies directly to the teaching of basic skills to minority children: Schools often confuse cognitive processes with functional uses of those processes.

What we have all come to call "basic skills" are merely, after all, the functional skills that the dominant culture finds most useful for manipulating the world of experience it knows. For the dominant culture the interrelationship between the functional basic skills and the underlying cognitive processes can be much more readily taken for granted because they both have developed within the same cultural system--it is a self-contained total system in which methods (basic skills) have been developed to deal with and to reinform the material, the experience, coded and organized in the underlying processes.

The critical mistake that schools make in attempting to teach basic skills to minority students is to take for granted that the same basic skills developed in the dominant culture will be automatically meaningful and useful in a different cultural system of knowledge. This assumption leads to the all-too-common practice of treating basic skills as if they were abstract entities applicable to everyone in the same way.

These cognitive processes and basic skills can be linked to each other, can help to reinform and reorganize each other in a meaningful educational enterprise. Vygotsky views the relationship between differing kinds of learning as interactive:

> From this point of view, learning is not development; however, properly organized learning results in mental development and sets in motion a variety of developmental processes that would be impossible apart from learning . . . An aim of the psychological analysis of development is to describe the internal relations of the intellectual process

> awakened by school learning. In this respect, such analysis will be directed inward and is analoguous to the use of X-rays. If successful, it should reveal to the teacher how developmental processes stimulated by the course of school learning are carried through inside the head of each individual child. (1978, pp. 90-91)

There are two basic ways in which the learning paradigm we are presenting differs from the well-known and influential structuralist paradigm developed by Piaget. In his theory, Piaget takes the position that development of an underlying structure, a "schema," always precedes the acquisition of a specific new performance or skill. For instance, a child would have to have developed the underlying cognitive structure of conservation before he or she could acquire specific information concerning the number system. Our position, instead, proposes a two-way, reciprocal, dialectical relationship between underlying cognitive structure and the attempted acquisition of <u>new</u> information in the form of basic skills. There are many instances where children work with that which they already know by condensing, reformulating, and extending their understanding. This second aspect of the interactive relationship between process and skill (or competence and performance in other frameworks) is illustrated by children's construction of productive rules. Once children display, in the course of language development, systematic errors and overgeneralizations, they are producing their own rules. The inflections produced in this way are outside the appropriate restrictions of adult grammar. But without the cognitive work of generalization and qualitative elaboration of what is known, intellectual growth would remain mundanely additive (a common behaviorist paradigm of learning). The interactionist theory we advocate, then, posits an ongoing, dialectical relationship in which underlying structure and basic skills consistently feed and reorganize each other.

Our second difference with Piaget is that his theory does not consider fully enough the relationships between specific social-cultural contexts and learning. For this reason, there is a tendency to treat the underlying structures Piaget posits as applicable, in general, to all peoples. If one follows his paradigm, one tends to think that literacy exists in the abstract, rather than that literacy is acquired within a certain culture, and that the steps to literacy occur or operate differently within different cultures according to functional uses and felt needs.

For example, language, just like everything else that is learned in the course of development, is available to the child in a socially and familiarly patterned context. Out of the totality of socially constructed reality and language, the child selects some features to internalize and remember, and then tries to approximate, very slowly, the adult usage of language. Learning to learn, learning to observe, to explore, and to generalize, are part of a shared life, just as the house in which the child lives is a structure that is available, but precedes the child's own activities since it has been constructed by those older than the child.

The full examination of the relationship between process and skill requires, particularly in the early stages of development, an acquaintance with the settings in which children acquire and perfect their competencies. An explanation of why some individuals rely more fully upon verbal, and others upon non-verbal processes, leads one to the study of <u>recurrent encounters</u> in the life history of individual learners.

Such a framework of recurrent encounters is ecological in nature as it represents the contexts of human growth as patterned. The human environment is thus seen as providing and limiting the nature and quality of human encounters that contribute to the ecological shaping of learning. Such widely varied factors as the rural or urban setting into which children are born;

their birth order; their parents' work activities; the size of their family; the contiguity of other kin; as well as the culturally developed and transmitted values of their communities all contribute to the patterned and enduring contexts of their growth.

Thus, we see an important three-way interaction as basic to development, and subsequently to instruction: It is the link between social contexts of learning, cognitive processes, and the acquisition of specific skills, including academic skills.

Two additional theoretical concepts have shaped our own thinking concerning this interactive framework: (1) the notion of "transformations," developed by Vygotsky in Thought and Language (1962) and in Mind in Society (1978); and (2) that of "functional learning systems" first introduced by Vygotsky, further developed by Luria (1976), and most recently worked with by John-Steiner and Osterreich (1976), and Scribner and Cole (1978). We will first briefly define each of the concepts and then use them both as theory and with concrete examples.

II. TRANSFORMATIONS IN COGNITIVE PROCESSES

By transformations, Vygotsky refers to profound changes in ongoing, underlying processes. In the case of the child, complex learning first takes place--is enacted and shared--on the social plane; that is, a child will be helped to solve a problem by an adult. As the child progresses in development, the means that were used to solve that problem are practiced, experimented with, modeled (both physically and mentally) until the child can eventually solve a similar problem independently. Once able to solve a similar problem, the child has fully internalized what he or she was exposed to, and a transformation in underlying processes has occurred to the extent that it changes the way his or her former knowledge was categorized or structured. This learning

to use a new system of categorization (this transformation) comes about through the meeting and interrelationship between already established knowledge, exposure to some new way of seeing the knowledge or new knowledge, and active experimentation on the learner's part.

Vygotsky himself provides perhaps the most cogent examples to illustrate the concept of transformation in Thought and Language (1962, pp. 41-52) when he characterizes the transformations involved in the movement from overt (purely social) speech to inner speech, to written forms of communication. At each of the stages, new formulations of the possibilities of the uses of language occur, allowing and promoting transformations in underlying cognitive structures. In different social contexts, adults would assume varying roles while assisting young learners, with different emphases in content and style, always facilitating important transformations according to the specific molds of a particular culture.

The first stage of human development and language use is characterized by a "pre-linguistic phase in the development of thought and a pre-intellectual phase in the development of speech" (p. 41). Speech at this stage is used by the child for emotional release and social contact--and is purely overt in form.

At approximately age 2 a dramatic change in language use occurs when the child discovers that each thing has its own name. Language begins to serve its potential for transformation of underlying processes because for the first time thought and speech "meet and join to initiate a new form of behavior" in which "speech begins to serve intellect/thought becomes verbal and speech rational" (pp. 43-44).

The third stage in the changing relationship between thought and speech (approximately between the ages of 3 or 4 to 7) is characterized by egocentric

speech--that seemingly eccentric speech used by the child in talking to him or herself even in the presence of others. At this stage the child has not yet learned to distinguish between using verbal thought as inner planning device and using verbal thought to communicate socially.

The fourth stage, occurring at approximately age 7 and continuing to develop until approximately 14, is characterized by inner speech taking its role as internal symbolic mediator when "external operation turns inward and undergoes a profound change in the process" (p. 47). During this critically important stage of intellectual growth, those organizing and planning functions of language that were beginning to appear in egocentric speech become totally internalized as a form of symbolic representation in inner speech.

A fifth stage, literacy, can also potentially involve transformations in underlying structures, since it is an additional way of symbolically manipulating and expressing, as well as reorganizing one's knowledge.

The research on literacy that we have conducted offers an excellent illustration of the role of transformations in the shift from oral to written language. One of these transformations deals with the nature of sequencing: Speech is open-ended, the beginning of a conversation does not necessarily predict its end. For writing, however, the learner needs to reverse his or her sequence of thought in order to be fully effective. Other important qualitative differences between these two forms of communication involve the move in writing to decontextualization (or recontextualization), understanding the notion of impersonal audience, decentering, constructing what Vygotsky has call a "web of meaning" (1962, pp. 99-100) through difficult manipulations and reconstructions in the back and forth movement between inner speech and external codes. (See Elsasser and John-Steiner, 1977; also Smith, Note 1).

Thus, when the young learner moves from oral speech to the full mastery of

written language, he or she is not only learning to write but is in the process of reorganizing the understanding of such things as sequences of events, points of views, notions of time and distance, etc. An example of a transformation that commonly occurs as a student learns to write has to do with reversibility. Often a student trying to write something will see only the possibility of proceeding in linear order--this happened first, this happened second, this third, etc.--when it really would be more effective to rearrange the order of details, or at least to start at the beginning having the end clearly in mind. In oral interaction the end really is not a needed starting point for the conversation to be initiated, but in writing, frequently, one needs to know where one is going before one knows how to start. If the beginning writer can be helped to experiment with and then internalize some of the possible steps for solving this problem (rather than merely being presented with a list of someone else's abstract rules for solving the problem), then it is possible that the individual can come to see something new about sequence in writing. The understanding about reversibility might then be matched to, experimented with, and used as a learning tool for other experiences.

As the child reaches school age, the school can become an important intervening agent in stimulating and guiding the direction of these kinds of transformations, if the three-way relationship between process, skill, and context is taken advantage of in a functional learning system. There can be a back-and-forth, mutually influencing, mutually expanding relationship between process and skill, which takes place within the context of socially mediated content and style.

Studies of learning most often depend upon a theory that stresses small incremental steps or a model that emphasizes insightful leaps in understanding. Neither of these models accounts well for the active and effective strategies individuals rely upon when engaged in complex tasks--such as

writing, or rapid information processing, or remembering. Although Vygotsky's notion of transformation is not widely applied to the study of these cognitive processes, it is a concept that clarifies some findings in contemporary research.

It has long been know that human beings have a limited immediate memory span; George Miller (1967) spoke of the magical number seven to illustrate this phenomenon. Nevertheless, we are frequently confronted with many more bits of information than this limited holding power of the brain can manage, a fact that pushes us to develop coding strategies in order to maximize what can be perceived and remembered. These strategies are frequently based on the learner's ability to reorganize--or transform--new information. George Miller describes this process as follows:

> The input is given a code that contains many chunks with few bits per chunk. The operator recodes the input into another code that contains fewer chunks with more bits per chunk. There are many ways to do this recording, but probably the simplest is to group the input events, apply a new name to the group, and then remember the new name rather than the original input events. (pp. 37-38)

Among the methods of recoding that he and others have studied are the re-labeling of unfamiliar terms into familiar ones; coding words into sentences, and organizing new information into images (Rohwer, Note 2; Miller, Galanter, & Pribram, 1967).

These studies exemplify the growing literature that emphasizes the critical importance of reorganization in both specific and general cognitive tasks. Transformations, then, are reorganizations of previous categories of knowledge which provide new insights and impetus to explore the environment in a new way. In this sense, transformations are not static levels of accomplished achievement, but powerful combinations of the old and the new that can then be used to foster and direct even additional learning.

III. COGNITIVE FLEXIBILITY AND THE FUNCTIONAL LEARNING SYSTEM

The study of literacy offers a useful example of highlighting a second major concept used in this presentation--functional learning systems.

The recent work by Scribner and Cole (1978) in their research for the Vai Literacy Project illustrates the importance of the notion of a functional learning system. Their research attempted to separate the effects of literacy and the effects of schooling in a traditional African society. It was their conclusion that the widely held assumption that literacy will contribute to "across the board" cognitive changes, particularly cognitive changes in the direction of abstract reasoning, should be argued with caution. These findings indicate there is no direct one-to-one relationship between literacy and abstract reasoning, a tenet that has been unquestioned for a long time.

Instead of taking a developmental approach in which the relationship between literacy and cognitive development is viewed and tested globally, Scribner and Cole developed a procedural approach by which they could examine specific uses of literacy by particular groups of individuals. Among the Vai, those who have learned and use the Vai script are indeed more effective in certain other communication situations in which there is also a need to convey the nature of a task to an uninformed listener. Scribner and Cole feel this ability is a transfer from skills the script users have developed as letter writers: In Vai society there are certain genre expectations--the writer prefaces or telescopes to the reader the message of the body of the letter. In tests of abstraction, or mental abilities, the Vais who are letter writers are more proficient than the general population in completing tasks which are related to this telescoping or summarizing skill. But in additional tests, Scribner and Cole did not find that proficiency in literacy was a significant predictor for cognitive performances of a broad range. That is, literate individuals did not perform consistently better on abstraction, verbal reasoning, or

metalinguistic tasks as would have been predicted on the basis of many current theories concerning the relationship between literacy and abstract reasoning.

The major distinction to be made in defining a functional learning system is to distinguish it from a developmental learning system. The developmental paradigm is heavily weighted toward considerations of native intelligence and maturation, and the parts they play in cognitive development. Functional learning systems, on the other hand, are more concerned with practice, how cognitive processes actually function, for what purposes they are used in different social contexts. Developmental theories tend to be more generalized and global, functional theories more specific and able to take into account individual interacting components in the ecologically patterned learning system.

The notion of a functional learning system also includes recurrent tasks that individual learners face in a particular social context: the ways in which the generalized human capacity to learn and use symbols is specifically practiced in a situation where certain demands are placed upon the learner, while other demands are absent from that particular context.

In studies recently conducted in Norway and Hungary, Hollos (1975) compared the development of children on non-verbal Piagetian tasks with their acquisition of complex verbal address forms, in both rural and semi-rural environments. These studies found that children living in isolated settlements who had farm duties and responsibilities for animals were accelerated in their non-verbal development, while children raised in culturally and socio-economically similar situations, but in more populated settings, who had frequent opportunities for verbal exchanges with peers and elders, were found to develop linguistically faster than the first group.

Hollos' study shows language is not of equal salience in all settings.

Language in some instances may be the most important means by which the child shapes, organizes, sorts or categorizes his or her reality in some culturally patterned environments, while in others, non-verbal processes play a more salient role.

Literacy education in urban settings with minority populations whose cultures strongly emphasize oral dialogue have been studied by Hill (1978). The study concludes that urban minority students: "by virtue of their greater immersion into an oral culture...reflect a stronger tendency to transfer strategies for information processing from oral discourse to written discourse" (Hill, p. 51).

In other words, students are using the social reality they know. It should be noted that the study does not conclude that the attempted application of oral strategies to written forms is an example of poor cognitive development, even though it is often a poor strategy for writing.

The research in literacy which we have conducted, and other research to which we have referred, highlights the necessity for the detailed analysis of both the cognitive aspects of academic skills as they relate to their acquisition and the social-cultural contexts in which such learning takes place and will be used.

Hill (1978) has shown that the simple transfer of strategies used in oral speech is not sufficient for the full mastery of writing. In some of our own work, currently in progress, with adult literacy programs in New Mexico and Arizona (see Elsasser and John-Steiner, 1977, for theoretical bases and preliminary reports), we have found analyses based on functional learning systems to be beneficial in teaching writing. Our theoretical and practical approach posits that individuals who have limited exposure to the varied use of literacy (due to social stratification, job barriers, language barriers, no publishing outlets, etc.) require more than mere exposure to written materials

or the drilling of grammatical and usage patterns in order to master the written forms of language. An effective curriculum requires the planning of intermediary steps in moving from speech to text, which steps are designed with both the cognitive and the social features of literacy as guidelines. Of greatest importance, we attempt to establish how writing can fit into, be linked with, already functioning community patterns of communication, and how beginning writers can make most immediate use of writing to satisfy pressing social needs and concerns. In conjunction with students, goals are set for working towards extended written forms of communication to reach ever-widening audiences. Our primary attempt is to build social uses of literacy, founded in the needs of the community and students. With this approach, we are able to prevent literacy skills from seeming abstract, artificial, and detached.

The kind of virtually taxonomic and functional analysis we suggest is a necessary effort because it broadens the possible avenues for the acquisition of literacy. Some have argued, for instance, that letter writing is a very important intermediary stage between inner speech and more formal written communication. It is a form of the use of literacy where the individual is addressing a known audience instead of an unknown audience. But in some societies, the use of the telephone has replaced letter writing as a form of communication. If, then, through examination of specific cultural contexts one finds that letter writing does not have the potential for representing a significant confluence of cognitive and communicative aspects of literacy for a certain group, then one would eliminate letter writing as a major significant stage of literacy instruction for that group, and substitute work with another intermediate stage instead. <u>The functional analysis of the use of academic skills is necessary as a framework for creating particular curriculum applications</u>.

The magnitude of the task we see here for educators is enormous. To indicate how educators might begin to use the concept of functional learning systems,

we quote at length from Basso (1974), who calls for an "ethnography of writing":

> The most conspicuous shortcoming of traditional studies of writing is that they reveal very little about the social patterning of this activity or the contributions it makes to the maintenance of social systems . . . How, for example, is the ability to write distributed among the members of a community, and how does the incidence of this ability vary with factors such as age, sex, socio-economic class and the like? With what types of activities is writing associated, and in what types of settings do these activities customarily take place? What kinds of information are considered appropriate for transmission through written channels, and how, if at all, does this information differ from that which is passed through alternate channels such as speech? Who sends written messages to whom, when, and for what reasons? Is the ability to write a prerequisite for achieving certain social statuses, and, if so, how are these statuses evaluated by other members of the community? How do individuals acquire written codes in the first place--from whom, at what age, under what circumstances, and, again, for what reasons? What are the accepted methods of instruction of learning? And what kinds of cognitive operations are involved? Is writing considered a source of pleasure and fulfillment? Is excellence in writing valued in any way at all? In short, what position does writing occupy in the total communicative economy of the society under study and what is the range of its cultural meanings? . . . When all is said and done, we shall find that the activity of writing, like the activity of speaking, is a supremely social act. (431-32)

Basso's work develops out of that done by Hymes (1974 and elsewhere) and is directly related to sociolinguistic concerns, which in turn stem from the disciplines of anthropology, sociology, and linguistics. Through seeking answers to these questions asked by Basso about specific communities, schools may begin to understand what students already know and use. In this way schools may be able to use the information they acquire to build upon and extend the knowledge of minority students.

IV. LEARNING, TEACHING, AND SCHOOLING OF MINORITY CHILDREN

The analysis we have presented is motivated by our own dissatisfaction with extant theoretical frameworks now used to work with both tribal and urban minority students, because within these theories, there is no way to consider the important three-way interaction of which we speak. Often for minority students, there is a lack of connection between what is learned as concept, as skill, and as attitude in the primary socializing environment with what is expected as performance in schools. In part, this is due to the underestimation of the power of primary learning that occurs outside of school; and in part it is due to the schools' inability or unwillingness to take stronger steps to relate primary and secondary learning.

Many of the studies cited contribute to the understanding of primary learning situations as adaptive, pervasive, personal, and tutorial. However, there are too few of these kinds of studies we consider so crucial to the full examination of intellectual growth; and the few studies that exist have not been applied by schools, as Suydam points out.

In her paper, Mathematics and The Urban Child, prepared for the CEMREL, Inc., conference, Marilyn Suydam (1979) writes that "there are actually relatively few studies which describe the actual classroom situation" (p.). Suydam also points out that according to the few ethnographic studies of classroom interaction available, contrary to educational innovations that have been advocated in many places in the last 20 years, most classes are still organized so that:

- -- the teacher talks about two-thirds of the time;
- -- teachers tend to use a direct, rather structural approach;
- -- over 50% of the questions teachers ask are at the knowledge level (i.e., factual in nature);
- -- the teacher initiates most exchanges; and

-- teachers communicate with brighter students in a more friendly and encouraging manner than with other students (p. 24).

And furthermore, that even though it has been found repeatedly that children profit from manipulating materials and concretizing mathematical concepts, very few continuous efforts of this kind are currently implemented in schools.

The few findings available based on the interactive process of teaching and learning in schools starkly contrast with the characterization of primary learning which we have described above. Although there is a very extensive literature on the outcomes of schooling, particularly as organized according to its impact on students from diverse socioeconomic, ethnic, urban, and rural backgrounds, the nature of schooling as it takes place in interaction with children from these settings is guessed at more than examined.

We suffer, then, a common, mutual ignorance both of the nature of learning in the informal setting of the home and community, and of teaching and interaction strategies that are currently being used in schools. Primary learning--that which takes place in the context of fundamental dependence of the child on older members of his or her community, learning which is necessary for biological and emotional survival--is not being adequately related to learning that takes place in the context of societal institutions that conceive their responsibility to be the intellectual development of the child, and the preparation of the child for a position in the labor force of the society.

Because the literature on teaching and learning has been product or outcome oriented, the relationship between these two contexts of learning has seldom been examined. The theoretical set which emphasizes only product tells us over and over that schools fail many children, but precisely because it is product oriented, it cannot be used to define and closely examine processes,

to control and experiment with alternatives. We need fewer studies indicating only that schools are failing to meet their stated objectives, and more studies that define and control specific variables in classroom interaction patterns.

In addition, the ignorance about primary learning, particularly as it occurs in the settings of minority and low-income groups, is not completely fortuitous. That is, in part, schools manage to stratify, manage to prepare better those who are already prepared for schooling, and help them more to acquire those skills that are necessary for success in our society, precisely because the ignorance of how children learn (other than middle-class children) makes the stratification job of the school easier.

It is interesting to look at some of the data from national evaluation studies that indicates the stages of divergence in achievement of children from varied backgrounds. In looking at the achievement of low-income urban children as compared to high-income urban children in areas such as mathematics, the difference between their achievement is minimal until after age 9; the separation occurs most dramatically between ages 9 and 14.

In part, we would interpret these findings to mean that teachers of younger children, by training and by inclination, do pay more attention to the nature of learning and experience that children bring to school. It is somewhat more probable that they will attempt to match their techniques with the previous learning of the child. Whatever matching takes place is still limited, but it is more likely to occur in earlier than in later grades.

Additionally, by the time children born and raised in low-income, oppressed communities reach the age of 10, they are becoming both more personally capable of exploring social mobility, and more vitally aware of their limited opportunities for social mobility. At this age they are more fully inter-

nalizing the history of their people and of their communities, which can profoundly change their attitudes towards schooling. This noticed separation of achievement can be accounted for both in terms of the child's view of his or her future, as well as by the decreasing possibility that what the child knows will be truly accepted, worked with, expanded in the school setting.

Both the product emphasis of most studies of schools, which does not allow the analysis of process variables, and the unquestioned or unconscious policies that further promote social stratification, contribute to the prevalence of cultural deprivation theories. In our view, such theories, although they continue to linger on, have been effectively demolished by criticism of the late 60s and early 70s represented in the work of Labov (1970), Freire (1970, 1973), and Bowles and Gintis (1976), among others. Rather than repeat criticisms made by these authors, we will concentrate on some recent literature that studies some successful educational programs.

The following studies indicate to us that successful programs depend on dealing with the true means and characteristics of children raised in minority and low-income groups. This successful use of a child's foundations for learning has occurred when the child has not been looked at in isolation, but when education has been looked at as a social process that affects an entire community. More long-lasting progress has been achieved with children whose learning has been explored, modified, and shaped in collaboration with their parents and communities.

In earlier studies and assessments of preschool intervention programs, such as Head Start, instructional variables emerged as powerful predictors of educational gains. Particularly, the highly structured Bereiter or Distar program contributed to rapid improvements in poor children's verbal and mathematical skills. However, these gains did not last long. In an interesting recent study of the long-term effects of infant and preschool

programs on academic performance (Vopava & Royce, Note 3) found that parental involvement was a critical feature of program effectiveness:

> The evidence suggests that variables such as teaching structure, types of orientation and goals don't differentiate programs. Nor do agent-type variables (except for parent, non-parent) such as whether the teacher is a professional, para-professional or volunteer . . . We have some evidence to indicate that the younger the child the more effective the program. Programs that included goals for parents were more effective than those that did not . . . Likewise, programs with visits to the home were more effective than programs without such visits . . .
>
> Thus we can say that the more effective programs were those where one intervenor worked with an infant and his/her parent in the home . . . (pp. 7-8)

Hunt (in press), in a study that reveals levels of both past and present success in a number of programs including Head Start, Project Follow Through, Parent and Child Centers and various programs involving home visits and teaching parents to work with their children, finds encouraging results in children's scholastic achievement and in community participation in schools as more school-parent collaboration is built into the programs. Citing an example of a Project Follow Through Program in Philadelphia, Hunt writes:

> This participation has given these parents a feeling that they have some control over their children's education as shown in an evaluative report where 95 percent of Follow Through parents claimed the program helped to develop a greater interest in their children's education and where more than 80 percent felt confident that their opinions were respected by school personnel. Moreover, the rate of teacher turnover in Philadephia's Follow Through program is lower than that for the system as a whole. Teachers remain with their Follow Through classes because they feel they are improving their classroom performance. Follow Through also appears to reduce family mobility. (p. 50)

Hunt also cites an interesting phenomenon called "vertical diffusion" by the developers of the Susan Gray program, which stresses working with mothers and the use of home visitors. Since this teaching process engaged the family as a wider social unit, there was "improved performance not only in the target

children who attended the classes, but also in the other children of the families, particularly those younger than the target child (p. 40)."

Another recent study, the National Consortium study on preschool effects (Lazar, et al., 1977) offers as one of its conclusions:

> Probably the most important finding is that low income children who received early education are better able to meet the minimal requirements of their school. Results on IQ tests indicate that this may be due to an increase in intellectual skills which lasts through the very important primary grades in school. Additionally one might hypothesize that the reduction rate in assignment to special education or of being held back in grade is due in part to increased parental concern and competence to deal with the school system--an indirect effect of parental sensitization by the preschool experience of their children. This hypothesis is certainly supported by the fact that all of the projects which found significant effects on special education were home visiting programs or had some visiting components. (pp. 107-108)

The following is one of a number of implications drawn from the research:

> While it is difficult to generalize across all public schools, in none of the public schools who sponsored preschool programs included in this study were parents involved as teachers of their own preschool children. Neither did they mount home-based services, nor accept children under four years of age. Further--there are exceptions--most public schools have rigidly defined and highly structured curricula, and the typical supervisory structure of a public school does not permit very much leeway in structure. The tendency to adopt uniform policies and philosophies in districts mitigates against the capacity of many school districts to be responsive to individual and subcultural needs in the way a fifteen-child Head Start site can. (pp. 109-110)

Taken together, these studies, all of which were done on a national scale, show that the most successful early childhood education has occurred when programs (in diverse locations, using diverse curricula and methods, with diverse populations) have engaged members of the community to which the

children belong, not only the children themselves. In these cases, a more organic learning, similar to that which takes place naturally in primary learning situations, is taking place in the schools or preschools.

Our own stress in this paper is upon the importance of the primary learning environment as a significant and powerful contributor to lasting intellectual development. In terms of our argument, these recent findings on the lasting effects of early intervention are interesting. They suggest that we should turn to the ethnographic and naturalistic study of environments in which informal learning takes place, as a corollary to our search for the improvement of school-based instruction.

This discussion of the primary-learning situation should be seen paradigmatically, not as a new theory of determinism rooted in early childhood. What we are arguing for is the power of learning when social and emotional ties are invoked. These ties are not limited to early childhood, but at the present state of our knowledge, they are best documented through studies of children's early years. Neither are we advocating modification of family structures or life styles as some cultural deprivation theories have in the past. We are advocating increased participation by families and communities in the institutions that affect their own and their children's lives. With an increased sense of control, it is more possible for people to use what they know to extend that learning together.

V. CULTURAL AND COGNITIVE DIVERSITY

At present, proponents of multicultural education recognize the existence of diversity--the social, ethnic, and economic differences among pupils. We would like to go beyond this valuable, but to our minds limited, concept of diversity, and suggest that real cultural pluralism in the schools requires a genuine recognition of cognitive diversity.

The pleas of men and women of culturally different groups in this country who have insisted upon respect for their traditions, and the respect for these within the schools, is well summarized by Fishman (1977):

> Thanks to our recent sensitivity to ethnicity, the non-English mother tongues and cultures in our midst are recognized as things of beauty, to be maintained and treasured forever. These languages and cultures are recognized not for manipulative, compensatory or transitional purposes, but as basic ingredients of a healthy, individual self-concept and of sound group functioning. Groups that are deprived of their languages and cultures are dislocated groups. Such groups have no choice but to dump dislocated and alienated students on the doorstep of the school and of all other institutions of the larger society. Greater self-acceptance among non-English-mother-tongue children (including acceptance of their parents and their traditions and their immediate societies) and greater mutual acceptance between such children and the American mainstream will also foster greater genuine school progress. (p.7)

While in full agreement with Fishman's analysis, we would like to suggest that schools need to go beyond a respect and support for cultural diversity. In a rapidly advancing technological society, human diversity--culturally patterned variations in language, thought and custom--constitute an essential resource which is needed by all. In addition, if these differences are to make a substantial contribution to life and knowledge in our contemporary world, they need to be the basis of educational and societal practice.

To date, however, the respect for and acceptance of cultural diversity has been rather passive. The recognition and use of differences has remained on a surface level. Cultural features of knowledge have been attached to, but not integrated with, the fundamental processes of schooling.

Cultural pluralism implies recognition of cognitive diversity--that is, acknowledgment of real functional differences which characterize groups of individuals in the ways in which they see, select, organize, and respond to

their differing human and natural environments. These systematic differences of knowledge-organization have long been known to the anthropologist, and they can no longer be ignored by educators. Cultural diversity is not solely a body of knowledge or tradition that stands outside the learner. Cultural differences are built-in and reflect cognitive differences.

Many of these differences have an historical basis. A.R. Luria (Note 4) expresses this viewpoint when he writes:

> . . . in order to understand the substance of higher psychological processes in man, it is necessary to go beyond the limits of the organism and to search for the roots of these complex processes in historically formed environment, in the communication of the child with adults, in the objective relations among objects, tools and language which have been laid down in the course of social history. In short, we must seek the roots of such higher psychological functions in the mastery of general, human, historically formed, experience. (p. 2)

In the United States, the ethnic groups have varying social histories. The children born into minority communities internalize part of their people's past to the extent to which their methods of learning are partly structured along the methods used by their parents. Cultural diversity is not solely a body of knowledge, artifacts, or tradition that stands outside the child. It can, for example, cognitively reflect the agricultural past of many ethnic minority children; it can reflect historical responses to poverty and discrimination.

In the American context, one of the dominant features of the social history of many ethnic minority groups is a shift from rural to urban environments. To a certain extent children internalize the often-conflicting characteristics and responses that are part of the social history of their cultural group as it attempts to make this transition from rural to urban environments. Children must then face and resolve as best they can any historical contradictions

involved in the living conditions of their social group.

Furthermore, as Edmund W. Gordon (1978) suggests, the contradiction inherent in urban environments is one of the major factors that must be taken into consideration if we are to define the unique nature of urban education:

> What then are the major issues confronting urban education and by which this field may be defined? The environment in which urban education exists is marked by contradiction. The paradox of the urban environment is that it is most inhibiting at the same time that it is most liberating. This paradox includes a number of polarities, such as extreme differences in people, life space, in conditions of life, and in the concentration of power and resources. The polarities can be traced from the individual's need to be both anonymous and a member of a small restricted group, to the possibility of institutions being either most open to change or most rigid . . . This paradoxical phenomenon of contradiction is a key feature of the urban community and is a key to understanding urban education. A definition of urban education, or the mapping of its domain, must include the cultural, economic, geographic, political, psychological, and sociological paradoxes of contradiction inherent in urbanicity. (pp. 6-7)

Cultural differences and the inherent contradictions of urbanicity can become an integral and productive part of instruction, if they are noticed and not ignored; they can be used to form the basis of an enriched, culturally responsive education (see Cazden and Leggett, Note 5). It is our contention, however, that this educational objective cannot be met without the mutual support and cooperation of schools with those involved in other settings for learning. Once such cooperation does take place, school-based instructional methods will be expanded to include learning approaches found effective outside of schools.

The distribution of knowledge is a very complex social and political process; simply making available a setting for knowledge exchange (the school) and

exposing students to certain forms of knowledge (basic skills) does not guarantee that there will be substantial learning or transmission of knowledge. As we have pointed out, the process is complex because previous and potential social and functional uses of knowledge must be considered, and because different cognitive foundations and styles must be taken into consideration. Only when schools begin to recognize and actively to encourage the cognitive diversity of their students by attempting to match more closely and to synthesize processes and learning from primary and secondary settings, will they be truly promoting cultural pluralism.

If our commitment to the full development of all human beings is substantial, not mere rhetoric, then we must foster cultural pluralism through cognitive diversity for the good of all of us. For minorities and for the poor, this will not only mean a better chance to master basic skills such as reading and math, but also, through this process of learning, it will mean a better chance to attain more power and participation in a wider breadth of the country's social, political, and cultural life. In our rapidly advancing technological society, human diversity constitutes an essential resource that is needed by all. As we move ever closer to homogenization, mass efficiency, and over-specialization in our technologies, perhaps the only way we will be able to maintain living environments is through recognition of human diversity.

Finally, we wish to stress again the need for awareness of an interactionist theoretical paradigm for learning; it is within this kind of theoretical paradigm that cognitive processes, skills, and functional contexts can best be examined and related or linked. An interactionist paradigm holds the most promise for investigation of and experimentation with functional learning systems. Other learning paradigms either ignore the importance of one or more of the components, or they treat their relationships as static. Underlying processes and basic skills can potentially consistently feed, expand, and change each other, creating ongoing learning. The advantage of the

interactionist paradigm is that it can deal with this fluidity, and can therefore give us a broader sense of what curricula might be designed for specific populations.

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